CHROMOSOME NUMBERS OF PHANEROGAMS. 3.[1]

Chromosome numbers of phanerogams are reported below together with voucher data and herbaria where collections are deposited. Unless indicated the chromosome records are based on the study of one plant. Haploid counts are from pollen mother cells, and diploid counts are from root tips unless otherwise indicated. An asterisk indicates that one or more permanent slides are available at the Missouri Botanical Garden Herbarium.

The authors responsible for counts are listed alphabetically. Citation should have the form: Doe, J. 1969. *In* Chromosome numbers of phanerogams. 3. Ann. Missouri Bot. Gard. 56:

Counts by W. G. D'Arcy, Missouri Botanical Garden.

Solanaceae

Physalis peruviana L. n = 24, meiosis regular. Portugal. Seed from the Jardim Botânico, Coimbra, grown at Missouri Botanical Garden, *D'Arcy 3116* (DAO, FSU, MO).

Solanum carolinense L. n = 12, meiosis regular. Illinois. clinton county: Along U.S. highway 50, about 14 mi. W of Carlyle, *D'Arcy 3424* (MO). marion county: Sandoval, *D'Arcy 3429* (MO); along U.S. highway 50, about 4 mi. E of Sandoval, *D'Arcy 3431* (MO); W side of Salem, *D'Arcy 3438* (MO).

Solanum carolinense var. *floridanum* A. Gray. n = 12, meiosis regular. Florida. clay county: W side of Doctors Inlet, *D'Arcy 3501* (FLAS).

Solanum dimidiatum Raf. n = 36 ± 1, meiosis regular. Florida. alachua county: W of Gainesville, along dirt road between Fla. highways 24 and 26, 1 mi. W of U.S. highway 75, *D'Arcy 1587* (FLAS, MO). gilchrist county: About 2 mi. W of Bell, along Fla. highway 341, *D'Arcy 2477* (FLAS, MO). In both colonies, proliferation was mainly if not entirely by underground stolons. In the Alachua County population little or no fruit set and matured. Fruits in the Gilchrist County population contained fewer than eight normal-looking seeds and many aborted ovules appearing like specks of pepper on the inside of the carpels. This is one of the first reports of polyploidy in *Solanum* subgenus *Stelatipilum* Seithe.

Solanum diphyllum L. n = 12, meiosis regular. Florida. alachua county: University of Florida campus, Gainesville, *D'Arcy 3500* (FLAS).

Solanum lanceaefolium Jacq. n = 12, meiosis regular. Virgin Islands. tortola: Sage Mountain Ridge, seed from *D'Arcy 2070* (FLAS), grown at the Missouri Botanical Garden, *D'Arcy 2070B* (MO).

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[1] Previous numbers in this series have appeared in Ann. Missouri Bot. Gard. 53: 100–103, 1966; Ann. Missouri Bot. Gard. 54: 178–181, 1967.

Solanum persicaefolium Dun. n = 12, meiosis regular. PUERTO RICO. Seed collected by Richard J. Wagner, grown at the Missouri Botanical Garden, *D'Arcy 3896* (MO).

Solanum torvum Sw. n = 12, meiosis regular. COSTA RICA. Seed accidentally introduced and growing in greenhouse, University of Florida, Gainesville, *D'Arcy s.n.* (FLAS).

Solanum tridynamum var. *anoplocladum* Dun. 2n = 24. FLORIDA. Seed from Tom & Bob's Nursery, 9550 SW 67th Avenue, Miami, grown at Missouri Botanical Garden, *D'Arcy 3901* (FTG, MO). This plant has been known as *S. amazonium* Ker-Gawl. (Bot. Reg. t. *71*, 1815). The microfiche edition of the *Prodromus* herbarium of DeCandolle (G-DC) includes the type of *S. tridynamum* var. *anoplocladum*. This agrees both with the plate which typifies *S. amazonium* and with the plant whose chromosomes were counted. If the very distinctive var. *anoplocladum* is in fact a variety of *S. tridynamum* Dun., as was judged by Dunal who described both *S. tridynamum* (Dun. *in* Lam., Encycl. Suppl. 3: 776, 1814) and *S. tridynamum* var. *anoplocladum*, then the earlier name *S. tridynamum* must take precedence over *S. amazonium*. The original description of *S. tridynamum* cites a Dunal plate and a Sessé and Mociño plate, neither of which was published, and neither of which could be examined at this time. *Solanum tridynamum* var. *anoplocladum* is a Mexican plant which has recently found its way into the Florida nursery trade. Dr. William Gillis reports that it is a weed in the plots at Fairchild Tropical Gardens, Miami.

Counts by THOMAS S. ELIAS, Missouri Botanical Garden.[2]

LEGUMINOSAE

Caesalpina crista L. 2n = 24. PANAMA. PANAMÁ: Playa del Palma, near San Carlos, *Lewis et al. 1503* (MO).

RUBIACEAE

Hamelia axillaris Sw. 2n = 24. PANAMA. CANAL ZONE: Madden Dam, Boy Scout Camp Road, *Dwyer & Elias 7491* (GH, MO, UC, US).

Hamelia patens Jacq. 2n = 24. PANAMA. SAN BLAS: Soskatupu, *Elias 1699* (MO), two plants.

Counts by WALTER H. LEWIS and ROYCE L. OLIVER, Missouri Botanical Garden.[3]

BIGNONIACEAE

Saldanhaea seemaniana O. Kuntze. 2n = 18. PANAMA. PANAMÁ: Between Río Pacora and Chepo, *Porter et al. 5150* (COL, MO, UC).

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[2] Present address: The Arnold Arboretum, Harvard University, 22 Divinity Avenue, Cambridge, Massachusetts 02138.

[3] Supported by National Science Foundation grant GB-5042.

COMMELINACEAE

Phaeosphaerion persicariaefolium (DC.) C. B. Clarke. 2n = 60.* PANAMA. CANAL ZONE: Vicinity of Madden Dam, *Lewis et al. 1813* (MO, UC).

Tripogandra floribunda (Hook. & Arn.) Woodson. 2n = 14.* PANAMA. CANAL ZONE: Farfan Beach, *Lewis et al. 49* (F, GH, K, MO, NY, UC, US).

CONVOLVULACEAE

Aniseia martinicensis (Jacq.) Choisy. 2n = 60.* PANAMA. HERRERA: Road from Chitre to Divisa, *Burch et al. 1360* (MO). Substitute for *Iseia luxurians* (Moric.) O'Donell, Chromosome numbers of phanerogams. 2, Ann. Missouri Bot. Gard. 54: 180, 1967.

Merremia macrocalyx (Ruiz & Pavon) O'Donell. 2n=28.* BRAZIL. Near Bahia-Minas Gerais border, between Pedra Azul and Vittoria da Conquista, seeds collected by Dr. Robert Dressler, voucher *Lewis 6798* (CAL, MO, NY, SMU).

EUPHORBIACEAE

Euphorbia ceratocarpa Ten. 2n = 26.* PORTUGAL. Cultivated at Missouri Botanical Garden (67-60-9), seeds from Jardim Botânico, Coimbra, voucher *Putman,* 1968 (MO).

Euphorbia graeca Boiss. & Sprunn. 2n = 32.* DENMARK. Cultivated at Missouri Botanical Garden (68-32-19), seeds from Hort. Bot. Hauniensis, Copenhagen, voucher *Putman,* 1968 (MO).

Euphorbia lagascae Spreng. 2n = 16.* DENMARK. Cultivated at Missouri Missouri Botanical Garden (68-32-22), seeds from Hort. Bot. Hauniensis, Copenhagen, voucher *Putman,* 1968 (MO).

Euphorbia platyphylla L. 2n = 28.* HUNGARY. Cultivated at Missouri Botanical Garden (68-23-4), seeds from Agrartudomanyi Egyetem Agrobot, Godolla, voucher *Putman,* 1968 (MO).

Euphorbia prunifolia Jacq. 2n = 16.* DENMARK. Cultivated at Missouri Botanical Garden (68-32-16), seeds from Hort. Bot. Hauniensis, Copenhagen, voucher *Putman,* 1968 (MO).

Euphorbia segetalis L. var. *portlandica* (L.) P. Cout. 2n = 18.* PORTUGAL. Cultivated at Missouri Botanical Garden (67-60-12), seeds from Jardim Botânico, Coimbra, voucher *Putman,* 1968 (MO).

IRIDACEAE

Sisyrinchium californicum (Ker) Dryand. 2n = 32.* CALIFORNIA. Seeds from University of California Botanical Garden, Berkeley; no voucher, but determination of immature plants verified.

LEGUMINOSAE

Erythrina atitlanensis Krukoff & Barneby. 2n = 42. GUATEMALA. SOLOLÁ: Between Santiago de Atitlán and San Pedro de Laguna, *Krukoff 1969-166* (NY) with count based on seedlings.

Erythrina × *bidwillii* Lindley. 2n = 42. CALIFORNIA. Cultivated at Missouri Botanical Garden from unrooted cuttings sent by Dr. Austin Griffiths, Jr.,

Department of Arboretum and Botanical Garden, County of Los Angeles, voucher *Lewis 7614* (GH, MO, NY).

Erythrina chiapasana Krukoff. 2n = 42. GUATEMALA. QUICHÉ: Near Cunen, *Krukoff 1969-211* (MO, NY) with count based on seedlings.

Erythrina cobanensis Krukoff & Barneby. 2n = 42. GUATEMALA. ALTA VERAPAZ: Near Tactic, *Krukoff 1969-195* (NY) with count based on seedlings.

Erythrina guatemalensis Krukoff. 2n = 42. GUATEMALA. ALTA VERAPAZ: Aldea Bangale (about 3 km from San Pedro Carcha), *Krukoff 1969-199* (NY) with count based on seedlings.

Erythrina sandwicensis Deg. 2n = 42. HAWAII. *Gillett s.n.* (location of voucher not known) with count based on seedlings (MBG 66-83-4); *Gillett 1983* (location of voucher not known) with count based on seedlings (MBG 66-83-5).

Erythrina subumbrans (Hassk.) Merrill. 2n = 42. ORIGIN UNCERTAIN. Cultivated, *Monsalud s.n.* (NY) with count based on seedlings (MBG 66-83-10).

Seeds of all species of *Erythrina* (except × *bidwillii*) were sent by B. A. Krukoff whose authoritative works on the genus are well known.

LILIACEAE

Nothoscordum bivalve (L). Britton. 2n = 18.* TEXAS. BOWIE COUNTY: Texarkana, *Suda 22* (MO). PANOLA COUNTY: Vicinity of Carthage, *Suda 18* (MO); Panola College campus, *Suda 20* (MO); Macedonia, *Suda 21* (MO).

LOGANIACEAE

Polypremum procumbens L. 2n = 20.* GUYANA. Vicinity of Georgetown, Atkinson Field Airport, *Robertson & Austin 269* (GH, MO, NY). Previous reports for this monotypic genus are all 2n = 22.

Strychnos panamensis Seem. 2n = 44.* GUATEMALA. SUCHITEPÉQUEZ: Chicacao, a few km from railroad station at Nahualate, alt. 500 feet, *Guillen 201* (NY). We thank B. A. Krukoff who sent seeds of this collection. Seeds were sown in our tropical greenhouses 25 November 1966 and germinated 27 April 1967.

PORTULACACEAE

Lewisia cotyledon (S. Watson) Robins. 2n = 28.* CALIFORNIA. SISKIYOU COUNTY: Klamath River cliffs, ca. 10 mi. N of Somes Bar, voucher *Lewis 6825* (MO). Seedlings were received from Dr. L. C. Hitchcock and grown at the Missouri Botanical Garden.

Montia parvifolia var. *flagellaris* (Bong.) C. L. Hitchc. 2n = 44.* OREGON: Coastal mountains, probably western slope near ocean, voucher *Lewis 6826* (MO). Seedlings were received from Dr. L. C. Hitchcock (who in turn received material from Carl English) and grown at the Missouri Botanical Garden. The typical variety is less robust and is diploid, 2n = 22 (Ann. Missouri Bot. Gard. 54: 181, 1967).

RUBIACEAE

Hedyotis biflora (L.) Lam. n = 18. SINGAPORE. Weed in Botanical Garden. Seeds were from S. R. J. White, progeny *Lewis 6693* (CAL, GH, MO).

Hedyotis caerulea (L.) Hook. n = 16. WEST VIRGINIA. TUCKER COUNTY: By river just above Black Water Falls, *Terrell 4131* (MO). This specimen is said to be an atypical form by its collector.

Hedyotis michauxii Fosberg. n = 16. NORTH CAROLINA. SWAIN COUNTY: Great Smoky Mountains National Park, road to Clingman's Dome, alt. 5500 feet, *Terrell 3961* (MO). WEST VIRGINIA. GREENBRIAR COUNTY: 1.5 mi. NW of Rupert, *Terrell 3989* (MO). TUCKER COUNTY: Black Water Falls, *Terrell 4162* (MO) (buds taken following cultivation at Silver Spring, Maryland).

UMBELLIFERAE

Oxypolis greenmanii Mathias & Constance. 2n = 28. Cultivated Missouri Botanical Garden (origin presumably Florida), voucher *Lewis 7613* (MO).

SOME NEW COMBINATIONS IN *PROTIUM* (BURSERACEAE)

In his monograph of *Protium* and several allied genera (Rec. Trav. Bot. Neerl. 39: 211–446. 1942), J. J. Swart used the name *P. neglectum* Swart to circumscribe several taxa of northern South America, Panama, and Costa Rica with sessile or rarely subsessile flowers. Cuatrecasas (Webbia 12: 375–441. 1957), however, has pointed out that *Protium neglectum* cannot be separated from the Peruvian and Bolivian *P. tenuifolium* (Engl.) Engl.

Protium tenuifolium ssp. *herbertii* (Cuatr.) D. M. Porter, *comb. nov.*

Basionym: *P. tenuifolium* var. *herbertii* Cuatr., Webbia 12: 407. 1957. [COLOMBIA: Santa Marta, *H. H. Smith 1741* (MO, isotype).]

P. neglectum var. *tenuifolium* Swart, Rec. Trav. Bot. Neerl. 39: 204. 1942.

Protium tenuifolium ssp. *mcleodii* (I. M. Johnst.) D. M. Porter, *comb. nov.*

Basionym: *P. mcleodii* I. M. Johnst., Sargentia 8: 164. 1949. [PANAMA: San José Island, *Johnston 557* (GH, holotype; MO, US, isotypes).]

Protium tenuifolium ssp. *sessiliflorum* (Rose) D. M. Porter, *comb. nov.*

Basionym: *Icica sessiliflora* Rose, N. Amer. Fl. 25: 259. 1911. [COSTA RICA: Santo Domingo de Golfo Dulce, *Tonduz 6989* (US, holotype; US, isotypes).]

P. sessiliflorum (Rose) Standley, Contr. U. S. Natl. Herb. 27: 224. 1928.

P. neglectum var. *panamense* Swart, Rec. Trav. Bot. Neerl. 39: 205. 1942. [PANAMA: Barro Colorado Island, *Bailey & Bailey 294* (F, holotype).]

P. neglectum var. *sessiliflorum* (Rose) Swart. *op. cit.* 39: 385. 1942.

The category subspecies, rather than variety, is used in the above combinations, as the taxa not only differ morphologically but also appear to be distinct geographically or ecologically. However, their morphological differences are not